

claims 48-56 which, for the reasons set forth below are believed to patently distinguish over the art of record.

To begin with it is important to recognize the sensors called for in the present invention are substantially different than the sensors disclosed in the Karakasoglu reference and are used to measure a totally different parameter than the parameter measured by Karakasoglu. The present invention utilizes pressure sensors which show a positive pressure amplitude during breath exhalation and a negative pressure amplitude during breath inhalation. This type of sensor is capable of generating signals such as those illustrated in Figs. 6-11 of the present application which are illustrative of the pressure waveforms generated by the breathing of patients suffering from various forms of sleep abnormalities. It will be noted that some of these waveforms are asymmetrical (ie the amplitudes of the positive and negative swings of the waveforms are different). Moreover the periodicity of many of the waveform features is quite long: substantially longer than that of audible sound waves (note the x-axis of these signals marked in minutes !). Previously it was thought that it was sufficient to sample the waveforms such as generated by the pressure transducers of the present invention at relatively low frequencies. For example the patent to Dunning et al (US Patent 4296756) provides a “smoothed output sample at 30 (thirty) times per second” col.5, ll. 45,46. The current invention, on the other hand Takes advantage of a far higher sampling rate (6,000 to 10,000 samples per second ) to be able, for example high frequency transients which are exhibited by some of the waveforms of Figs. 6-11. This high sampling rate is also able to detect waveforms such as the squarewaves illustrated in Fig 7.

The sensors used in the Karakasoglu reference, on the other hand are vibration sensors or microphones. Rather than producing signals indicative of positive and negative air flow turbulence and sound in the air flow (see col.5, ll. 55-57). It is not believed that these vibration sensors are capable of producing signals corresponding to positive and negative air flow which are precisely the signals that the present invention analyses. It is similarly unclear as to whether the microphones of the Karakasoglu reference are capable of accurate production of waveforms such as the square waves of Fig. 7.

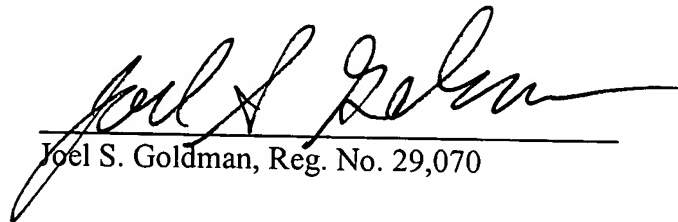
Even though the Karakasoglu reference suggests a signal sampling rate of 8,000 Hz. (col.6, l. 59) this is in no way suggestive of using such a high sampling rate for the relatively low frequency signals produced by the pressure sensors of the present invention. It is well known that human voice sounds are in the range of approximately 100Hz. to 5,000Hz. It is also well known that accurate digital reproduction of a sound wave require it to be sampled at at least two times its frequency. Thus the 8,000 Hz. Sampling frequency of Karakasoglu appears to merely be the sampling frequency necessary to accurately reproduce a 4,000 Hz. audio signal generated by a Karakasoglu microphone. This is in no way suggestive of using a 6,000 to 10,000 Hz. Sampling rate on the relatively low frequency signals produced by the pressure sensors of the present invention.

Turning now to the presently pending independent claims (claims 48, 49 and 53) in this application now call for a breathing signal produced by a pressure sensor to be sampled at a rate of between 6,000 and 10,000 times per second before being digitized and stored with a time stamp for further analysis. None of the art of record suggests such a high frequency sampling of a low frequency pressure signal as an aid to diagnosing sleep disorders. The remainder of the

claims add further patentable subject matter to these independent claims and are also patentable as depending , directly or indirectly from an independent claim. Allowance of claims 48-56 and passage of this application to issue is, therefore respectfully requested.

A check in the amount of \$225.00 for an extension of time to Aug. 2, 2007 is submitted herewith. It is believed that no additional fees are required with this submission. However, should an additional fee be required, the Commissioner is hereby authorized to charge the fee to Deposit Account No. 501982.

Respectfully submitted,

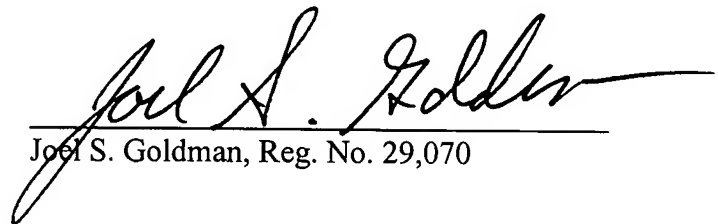


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I hereby certify that this paper, along with any paper referred to as being attached or enclosed, is being deposited with the United States Postal Service on the date shown below with sufficient postage as U.S. Express Mail in an envelope addressed to the Assistant Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450.

  
Joel S. Goldman, Reg. No. 29,070

Date: August 2, 2007